



By: James Gantz / courtesy EEPF

Reliable energy service ensures that citizens do not experience brown and blackouts.



Energy demand fluctuates with changing weather, precipitation and water flow patterns, and climate.



NOAA will improve temperature and water flow forecast capabilities.

FY 2003 President's Request

Energy Security Program

What is requested?

NOAA requests an increase of \$6,100,000 to improve the accuracy and reliability of forecast models of weather, hydrology (e.g. precipitation and water flow), and climate conditions. By improving NOAA observing and modeling capabilities in these areas, more accurate temperature and precipitation forecasts will be available. The forecast information can be used by the energy industry to increase efficiency, reducing energy generating costs as well as minimize risks of insufficient energy availability. In FY2003, NOAA will install observing equipment and forecast technology to improve forecasts, the positive impacts of which will then begin to accrue by FY2004. This joint effort between NOAA Oceanic and Atmospheric Research and NOAA National Weather Service will begin with a demonstration project to build on an existing Forecasting Pilot Program in New England and to accelerate operational implementation of forecast technology in the Southeastern U.S. The pilot is expected to bring savings of more than \$10 million annually to the public in the pilot regions alone through improved industry efficiency.

Why do we need it?

Energy demands rise and fall with changes in weather, especially temperature, but also with the distribution of rainfall through space and time. Power outages occur when the energy supply cannot meet the demand under varying conditions, such as heat waves, cold spells, droughts and floods. Thus, more accurate daily to five-day temperature forecasts can lead to improved energy demand forecasts resulting in more efficient energy generation and transmission. Further, more accurate river flow forecasts can enhance the efficiency of water resource management and hydroelectric power generation. The ability of the energy sector to efficiently and safely provide power, a necessity in our modern society, depends on accurate and reliable forecast information beyond that currently available so that citizens can expect reliable service and savings. An investment in model development and new observing technologies and networks ensures continued success in measuring and predicting these natural fluctuations. New predictive tools can then be implemented and used to anticipate energy demands and manage energy resources and operations with a higher degree of efficiency.



Forecast information is used by the energy sector to anticipate demand.



Flow forecasts contribute to efficient generation of energy in power plants and in dams. (Photo by: United States Department of the Interior, Bureau of Reclamation)



Energy sector forecasters



For more information:

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What will we do?

NOAA will create new and improve existing forecast products and services in the areas of weather, hydrology and climate through the Energy Security Program. The goal of the NOAA Energy Security Program is to make new service capabilities available to the energy industry within 18 months from the start of the program by implementing real-time observations and higher resolution numerical weather prediction models. With the demonstration project, NOAA will:

- Install temperature and precipitation observing equipment at up to 200 new sites
- Develop and install higher resolution weather prediction models
- Implement the Advanced Hydrologic Prediction Service Program
- Conduct education and outreach as well as provide planning assistance to the energy sector

What are the benefits?

Improvements to NOAA forecasting services are expected to directly benefit the country through the energy industry. NOAA Energy Security Program will produce a 2 degree Fahrenheit improvement in 24-hour temperature forecasting as well as new short- and long-range probabilistic predictions of water flow into major reservoirs generating hydroelectric power. Incremental improvements in forecasts can have a tremendous impact on economic efficiencies in the Energy sector, thus increasing the overall security of the U.S. economy. A recent study by the Tennessee Valley Authority estimated that the annual cost of electricity could decrease by \$1 billion nationally if temperature forecasting is improved by one degree Fahrenheit. Conservative estimates suggest that temperature forecasting improvements in the pilot region alone could save utility companies and customers more than \$10 million annually, not to mention the significant savings that can be generated from efficient water resource management, particularly in drought prone regions of US. The energy industry can utilize the new information and capitalize on economic savings to ensure reliable service so that residents will experience fewer brown and blackouts.

NOAA Budget

FY2003 Change
\$ millions

Oceanic and Atmospheric Research
Weather and Air Quality Research
U.S. Weather Research Program (USWRP)
Energy Security Program

\$6.1